

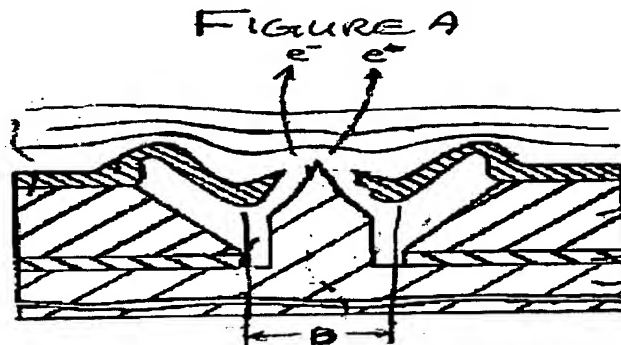
REMARKS

Applicants respectfully request reconsideration of the above-captioned application. Claims 1-6 and 16-25 are currently pending. A minor change ("a electrode" to "an electrode") in claim 18 is proposed. This change improves readability without changing the scope of the claims. Accordingly, entry is respectfully requested.

In the final Office Action, the Office suggests that the Toyota gate electrode "further includes a cylindrical electrode part (4B) that is capable of forming a focused electron beam from the gate towards the proceeding path of an electron beam," and that the Toyota reference also shows a cylindrical electrode part being a bellmouse shaped electrode that broadens in the direction of the propagation of the electron beam. The undersigned thanks the Examiner for his clarification but respectfully submits that the reference neither anticipates nor suggests the present invention.

Claim 1 recites that the gate electrode "includes a cylindrical electrode part that forms a focusing electric field from the gate hole towards a proceeding path of an electron beam" and independent claim 18 recites that the "gate electrode further includes a cylindrical electrode part having one end closer to the substrate as a smaller radius and another end further from the substrate having a larger radius, and a surface between the one and other end such that upon application of an electric field, a converging electric lens is formed at a proceeding path of an electron beam emitted from the electron emitter." Further, claims 2 and 19 recite that the cylindrical electrode is a bellmouse shaped electrode part.

As Figure A (adjacent) shows, the relevant part of the gate electrode layer 4, as described in the English language abstract, is that part which is closely adjacent to the emitter tip 2, *i.e.*, shown as "B". This portion adjacent to the tip clearly extends from closely adjacent to the tip downward away from the tip in a pattern opposite to that recited in the present invention. As illustrated in Figure A, the resulting electric lens would be somewhat divergent in nature rather than convergent as illustrated in the exemplary embodiment shown in Figure 5 of the present application. Hence, applicants respectfully submit that the gate electrode is properly delimited to the part of the gate electrode layer 4 shown by the reference number B in Figure A.



Whether one wants to include more of the gate electrode layer 4 or not, the focusing nature of the lens as recited in claims 1 and 18, is not met by the Toyota reference. It is also noted that though the undersigned does not read Japanese, it appears from the figures, most notably Figures 8 and 9, that the frustoconic section of the gate electrode layer 4 occurs as a result of a processing step designed to get the gate electrode layer 4 as close to the emitter tip as possible, rather than by design of the electrode and formation of the electric lens per se. See also Figures 18-23 of the Toyota reference. Figures 18E, 19C, 20E, 21C, 22D, 23D, 24C and

25C illustrate that the operative part of the electrode layer converges at the tip, and therefore creates a diverging electric lens.

If not abundantly clear from the foregoing comments, the entirety of gate electrode layer 4 should not be equated to a gate electrode. It extends well beyond any reasonable extent that could have a gating effect on the electron emissions. At some point, a portion of the gate electrode layer 4 forms a gate electrode (i.e., adjacent to the emitter tip) and elsewhere should not be considered the gate electrode, but rather just the gate electrode layer. Applicants respectfully submit that the operative part of the gate electrode layer, and hence the gate electrode, is properly approximated by range B in Figure A.

In light of the foregoing comments, applicants respectfully request reconsideration and allowance of the application, including all of the currently pending claims. Should any residual issues exist or arise, the Examiner is invited to contact the undersigned at the number listed below.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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By: 

Charles F. Wieland III
Registration No. 33,096

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620